Preface

The 12 papers in this issue represent research presented at the Advanced Seminar on Paleodiet, which convened on the campus of the University of California, Santa Cruz in September 2001. This seminar series began in 1986 with a meeting in Santa Fe, New Mexico, that brought together a small group of researchers for several days of intensive discussion on 'Bone Chemistry and Human Behavior'. At the time, this was 'an esoteric subject with a small pool of specialized practitioners' (Haas, 1989). These practitioners, mainly anthropologists, were synthesizing recent developments in biology, chemistry, and environmental science to explore important anthropological issues, such as the composition of past human diet. The publication of ten papers from the first seminar (Price, 1989) provided a comprehensive compilation of existing research. The papers addressed which chemical measures are the most promising, what the sources of variability in those measures are, and what can be done to assess and ameliorate the effects of post-mortem alteration of the biological signal.

In the 15 years that have elapsed between the first and sixth seminars, this research area has blossomed tremendously. A broad palette of chemical proxies is now available, including trace elements, light stable isotopes, and heavy isotopes. The materials that can be analysed has grown too, and now includes 'bulk' tissues (bone and tooth mineral or protein, collagen, fat and hair) as well as a rapidly expanding suite of individual organic compounds such as cholesterol, and individual amino and fatty acids. And while dietary reconstruction is the goal of many studies, the issues being explored have grown to include physiological and reproductive state, patterns of residence and mobility, and palaeoenvironmental context. Finally, this seminal research on methods to study human palaeodiet, physiology, ecology and mobility has repaid its debt (with interest) to the biological, geological, and environmental sciences. In the last five years, animal ecologists and wildlife biologists have taken up these methods with a vengeance to study a staggering diversity of organisms and questions (Hobson & Wassenaar, 1999).

Thus, by the time of the sixth seminar it was no longer possible to convene all the key researchers and the topic was no longer esoteric. The seminar was attended by 40 people with a mix of more senior workers and graduate students. It featured 26 oral presentations and 14 posters and offered work from scientists from nine nations. The papers presented here are an overview, rather than a comprehensive compilation, but they do encompass the major themes and issues explored at the seminar. The papers by Balasse, Schoeninger et al. and Hoppe et al., explore issues of tissue growth, sampling strategies, and post-mortem alteration. Progress in this discipline is partly tied to analytical advances, and the papers by Clementz et al. and Richards et al. present reviews and pilot studies on two isotopic systems (calcium and sulphur) now amenable to more extensive work due to recent breakthroughs. Similarly, to apply these methods to field and historical research, we need a solid understanding of physiological and metabolic influences on chemical signals. The paper by Bocherens & Drucker explores these issues through a carefully controlled field study, Hedges examines the problem through quantitative modelling, and both Howland et al. and Sponheimer et al. offer key insights gained from studies of animals raised on controlled diets. The volume ends with a series of papers on applications to ancient systems, including the work by Burton et al. and Schweissing & Grupe on human migration and mobility, and the paper by Lee-Thorp et al. on the diets and ecology of Plio-Pleistocene hominids.
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